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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/669,149	09/23/2003	Erich Strasser	56/417	2988

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EXAMINER	
MONBLEAU, DAVIENNE N	

ART UNIT	PAPER NUMBER
2878	

DATE MAILED: 11/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/669,149	STRASSER, ERICH	
	Examiner	Art Unit	
	Davienne Monbleau	2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 September 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☒ Interview Summary (PTO-413) Paper No(s)/Mail Date. *11/8/05*.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Withdrawal of Finality

Applicant's request for reconsideration of the finality of the rejection of the last Office action (dated 10/19/05) is persuasive and, therefore, the finality of that action is withdrawn. (See attached interview summary.) A new action on the merits for claims 1-19 follows.

Response to Amendment

The amendment filed on 9/15/05 has been entered. Claim 1 has been amended. New Clams 18 and 19 have been added. Claims 1-19 are pending.

Claim Objections

Regarding Claim 19, the phrase "wherein said detector arrangement comprises a plurality of detector elements" is not further limiting because Claim 1 already recites "an arrangement of detector elements."

Claim 19, line 2: "each on" should be changed to -- each one -- .

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 8, 10-12, 18, and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Mayer et al. (U.S. 6,472,658).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Regarding Claim 1, *Mayer* discloses in Figures 1 and 6 a position measuring instrument comprising a periodic incremental graduation (2) comprising a plurality of graduation periods within one measurement range, a reference marking (R) disposed within said measurement range and integrated with said incremental graduation (2), and an arrangement of detector elements (5, 6) over at least a length of said measurement range for generating a plurality of periodic scanning signals (column 5 lines 5-20) of which at least one is modified locally by said reference marking (R). *Mayer* discloses (column 7, lines 61-65) determining an absolute position of said reference marking within said length of said measurement range as a function of said detected at least one scanning signal. Thus, it is inherent that there is an evaluation device that receives said scanning signals and detects at least one scanning signal, modified by said reference marking, from said plurality of scanning signals in order to determine that position.

Regarding Claim 12, *Mayer* discloses in Figures 1 and 6 a method for position measurement comprising scanning (column 5 lines 5-20) a plurality of graduation periods of one incremental graduation (2) by a detector arrangement extending over a length of one measurement range, a reference marking (R) being integrated with one of said graduation periods, and generating a plurality of periodic scanning signals, of which at least one is locally

modified by said reference marking (R), detecting (5, 6) said at least one scanning signal, modified by said reference marking (R), from among said plurality of periodic scanning signals, and determining an absolute position of said reference marking within said length of said measurement range as a function of said scanning signal detected (column 7 lines 61-65).

Regarding Claim 8, *Mayer* discloses in Figure 6, that said reference marking (R) is a variation of an interstice in a series of equally spaced markings which forms said incremental graduation (2).

Regarding Claim 10, *Mayer* discloses in Figure 1 that parallel to and next to said incremental graduation (2), an absolute code (1) for absolute position measurement is disposed at measurement increments in accordance with said length of one measurement range.

Regarding Claim 11, *Mayer* discloses that said absolute code (1) is a single-track sequential code with successive code elements.

Regarding Claims 18 and 19, *Mayer* discloses in Figure 1 detector arrangements comprising a plurality of detector elements (5, 6), wherein each detector element is assigned to its own corresponding location within said length of said measurement range and said absolute position of said reference marking determined by said evaluation device is one of said corresponding locations of said detector elements within said length of said measurement range.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 2-7, 9, and 13-17 are rejected under 35 U.S.C. 103(a) as being obvious over Mayer in view of Omi (U.S. 5,841,133).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Regarding Claim 2, *Mayer* teaches (Figures 1 and 6; column 4, lines 1-10) that within said measurement range, N graduation periods are disposed, where N>1 and is an integer. *Mayer* teaches using plurality of detectors, but does not teach that said arrangement of detector elements over said length of said measurement range forms N groups, and each of said N groups of detector elements extends over said length of one graduation period, and within each of said N

groups, a plurality of detector elements are spaced apart from one another by a fraction of one graduation period, so that, within one of said N groups, a plurality of periodic scanning signals phase-offset from one another are generated. *Omi* teaches in Figure 3 a linear position encoder comprising an incremental graduation (1) with a measurement range and at least two groups of detectors (each with 4 detectors) wherein each detector group extends over one graduation period and the detector elements (PDA, PDAB, PDAB, PDBB) within each detector group are spaced apart from one another by a fraction of one graduation period, so that, a plurality of periodic scanning signals phase-offset from one another are generated. It would have been obvious to one of ordinary skill in the art at the time of the invention to use a plurality of detector groups in *Mayer*, as taught by *Omi*, to improve the resolution and position detection accuracy.

Regarding Claims 3-5 and 13-17, methods for determining the absolute position of an object by evaluating the detected phase signals from the encoder are well known and involve standard data analysis techniques. This includes comparing the detected phase signals from the scanned beams and interpolating the absolute position from the detected signals.

Regarding Claim 6, *Mayer* teaches in Figure 6 that said reference marker (R) is integrated into the incremental graduation (2), which is a phase grating. Thus, there is going to be interference in periodicity at the reference marker (R) location within the incremental graduation. Using a particular size reference marker (R) within said incremental graduation (2) depends on the desired characteristics of the position encoder. Furthermore, methods for determining the absolute position of an object by evaluating detected phase signals from the encoder are well known and involve standard data analysis techniques and may include comparing the detected phase signals from the scanned beams.

Regarding Claim 7, methods for determining the absolute position of an object by evaluating the detected phase signals from the encoder are well known and involve standard data analysis techniques. This includes comparing the detected phase signals from the scanned beams and interpolating the absolute position from the detected signals.

Regarding Claim 9, *Mayer* teaches in Figure that said reference marker (R) has a few components but does not teach a second reference marker. It would have been obvious, however, to one of ordinary skill in the art at the time of the invention to use a second reference marker in *Mayer* to more accurately determine the absolute position of the device.

Response to Arguments

Applicant's arguments filed 9/15/05 have been fully considered but they are not persuasive. Applicant makes the following arguments:

A. *Mayer* does not teach an evaluation device that receives signals from an arrangement of detector elements.

B. *Mayer* does not detect a signal modified by a reference marker from a plurality of scanning signals.

C. The absolute position in *Mayer* is not determined as a function of a detected scanning signal modified by a reference marking.

Regarding argument A, Examiner agrees that elements 5 and 6 are photodetectors but does not find Applicant's argument persuasive because *Mayer* inherently includes an evaluation device that receives the signals in order to determine the position. This evaluation device may either be integral with or external to the detectors (5, 6).

Regarding argument B, Applicant's argument is not persuasive because the reference marker (R) modulates the scanned beams (column 5 lines 5-39.) Thus, the position is determined by a signal modified by a reference marker (R). (See also column 7, lines 56-65.)

Regarding argument C, since argument B is not persuasive, it follows that *Mayer* does discloses determining a position as a function of a detected scanning signal modified by a reference marking.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Davienne Monbleau whose telephone number is 571-272-1945. The examiner can normally be reached on Monday through Friday 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on 571-272-2328. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Davienne Monbleau

DNM

Stephone B. Allen
Primary Examiner